LQL also claims that as few as 141 AMSC terminals transmitting simultaneously in one Globalstar beam will cause more than 6% delta T/T in their system. AMSC's out-of-band emissions limit, including modulation sidebands, at 1626.5 MHz is -48 dBW/4 kHz for voice terminals and -46.8 dBW/4 kHz for data terminals, or - 64.5 dBc and -52.8 dBc respectively. These values are considerably below -43 dBc/4 kHz, the level required by Section 25 .202(f) of the Commission's rules. Further, as discussed above, other systems do now or will operate in the lower-L-band that have higher out-of-band emissions than those of AMSC terminals. With the successful launch of the Inmarsat 3 satellites, Inmarsat will soon be operating in portions of the band from 1626.5 to 1660.5 MHz. Their published standards for Inmarsat B, land M, and maritime M services have an out-of-band emission limit of -33 or -35 dBW/4 kHz at 1631.4 MHz and -55 dBW/ 4 kHz at 1616 MHz. They do not define the emission density in the transition region between these frequencies. It is clear that these terminals will be more harmful to Globalstar operations than the AMSC terminals. In addition to Inmarsat, the Australian and Mexican systems use terminals that have out-of-band emissions similar to either the Inmarsat or AMSC terminals. The Canadian MSS system, also now in operation, uses terminals identical to those of AMSC. From these facts, it appears the Globalstar system was not designed to operate in the interference environment that exists in their band.

There are also assumptions in the Globalstar analysis that are excessively conservative. First, they assume that all AMSC mobile terminals produce out-of-band emissions at the specified limit. However, to be able to guarantee that emissions do not exceed the limits, manufactures include margins in the design such that failing to meet the specifications will be rare. Hence, the likelihood of having a large number of terminals operating at the specification limits is very small. Second, LQP, in the attachment to its comments, states that a Globalstar satellite may use its uppermost FDM channel either because no TDMA systems ultimately deploy within the US, or because it is serving Mexico or Canada and parts of the beam overlap the United States. That interference could result from this

situation appears to be unlikely. If a part of Globalstar beam operating in Canada or Mexico at a mobile uplink frequency of 1625.8 MHz overlapped the US, the consequences would be reduced by the fact that AMSC mobile terminals could physically be only in the fraction of the beam that overlaps. Further, prudent design practices would dictate that LQP not operate beams adjacent to and overlapping the US in frequency ranges occupied by the US licensed TDMA system. Failure to do so would result in LQP receiving in-band interference from that system, or causing interference to that system. Therefore, this case may not be significant.

The following table provides a revised analysis of the effect of AMSC data terminal out-of-band emissions, assuming that Globalstar operates below 1622.6 MHz. From the table, 638 simultaneous mobile transmissions would be required to exceed Globalstar's criteria, even if all AMSC mobile terminals have emissions at the mask limit. Since 638 channels would occupy more than four times the bandwidth required to support 30,000 terminals, the out-of-band emissions of AMSC's terminals will not cause unacceptable interference to Globalstar. The in-band emissions into Globalstar from AMSC will also be greatly reduced by the additional frequency separation, however, in-band emissions from other systems will apparently still be a concern.

AMSC Data Terminal Out-of-Band Emissions into Globalstar

Quantity	Value	Units	Comment
Frequency	1622.6	MHz	Expected Globalstar band edge.
Satellite Altitude	1414.0	km	
Elevation Angle	50	degrees	
Range	1740.5	km	
Free Space Loss	-161.5	dB	
Polarization Isolation	-6.0	dB	
Sat. Antenna Gain	15.7	dB	
Line Loss	-1.1	dB	
System Noise Temp (at LNA)	500	K	
Boltzmann's Constant	-198.6	dBm/Hz-K	
Thermal Noise Density	-201.6	dBW/Hz	
Allowable Interfernce Density at LNA	-213.8	dBW/Hz	Using 6% delta T/T
Allowable Interference Density at Earth's surface	-24.9	dBW/4 kHz	
Emission Density from an AMSC Terminal	-53	dBW/4 kHz	Data MT spurious at 1622.6
Allowable Number of Simultaneous Transmissions in one Beam	638.5	channels	
Bandwidth Required @ 5 kHz/channel	3192.3	kHz	
Approx. MT Transmit Bandwidth Required to support 30,000 MTs	700	kHz	

American Mobile Satellite Corporation

TECHNICAL CERTIFICATE

I hereby certify that I am the technically qualified person responsible for the engineering portions of the foregoing Reply Comments. The technical information contained in these Reply Comments is complete and accurate to the best of my knowledge and belief.

By: Richard O. Evans

Richard O. Evans
Senior Scientist
AMSC Subsidiary Corporation

Date: October 7, 1996

CERTIFICATE OF SERVICE

I, Cindi Smith Rush, a secretary to the law firm of Fisher Wayland Cooper Leader & Zaragoza L.L.P., hereby certify that on this 7th day of October, 1996, I served a true copy of the foregoing "Reply Comments" of AMSC Subsidiary Corporation by first class United States Mail, postage prepaid, upon the following:

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